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REMARKS

Reconsideration of this application, as amended, is respectfully requested.

The April 1, 2003 Office Action and the Examiner's comments have been carefully considered. In response, claims are amended and added, and remarks are set forth below in a sincere effort to place the present application in form for allowance. The amendments are supported by the application as originally filed. Therefore, no new matter is added.

PRIOR ART REJECTION

In the Office Action claims 1-3, 7-8 and 11-13 are rejected under 35 USC 102(a) as being anticipated by USP 6,251,696 (Ikeya et al.). Claims 4-6 and 10 are rejected under 35 USC 103 as being unpatentable over Ikeya et al. Claim 9 is rejected under 35 USC 103 as being unpatentable over Ikeya et al. in view of USP 5,126,813 (Takahashi et al.).

In response, claim 1 is amended to more clearly define the present claimed invention over the cited references.

Amended claim 1 is directed to a sample assembly (10) for a thermoelectric analyzer which includes an electrically-insulating substrate (12), a pair of junction electrode layers (24, 26) formed on the substrate, an adhesive layer (16) disposed on the substrate, the adhesive layer being non-contiguous with the pair of junction electrode layers, a sample (14) fixed to the adhesive

layer and being non-contiguous with the pair of junction electrodes, a pair of electrode layers (20, 22) formed on the sample, and two electrically conductive wires (28, 30). A first electrically conductive wire (28) connecting one of the electrode layers (24) with one of the junction electric layers (20), and a second electrically conductive wire connecting the other of the electrode layers (26) with the other of the junction electrode layers (22).

The sample assembly of the present claimed invention forms an electric circuit from one junction electrode layer (24) to the other junction electrode layer (26). The order of connection includes junction electrode layer (24), electrically-conductive wire 28, electrode layer (20), sample (14), the other electrode layer (22), the other electrically-conductive wire (30) and the other junction electrode layer (26). As a result of the electrical coupling, the electrical property of the sample can be measured.

In the Office Action the Examiner states that Ikeya et al. (USP 6,251,696) discloses a sample assembly for a "thermoelectric analyzer". Ikeya et al., however, does not disclose a sample assembly for a "thermoelectric analyzer". A thermoelectric analyzer can measure an electrical property of a sample as the sample temperature varies. The thermoelectric analyzer includes TSC (Thermally Stimulated Current), DEA (Dielectric Analysis: thermal relaxation measurement, see the specification of the

Arg 1 limitation in preamble

Not in claim (arg 1)

present application). Ikeya et al. discloses measurement of resistance between two electrodes of an integrated circuit for evaluating a bonding condition, but does not disclose measurement of resistance during the temperature variation.

The present claimed invention has the advantage of good temperature uniformity, a small contact-electromotive force and a small thermoelectromotive force. Ikeya et al. does not suggest these advantages because it does not relate to measurement during the temperature variation.

In the Office Action the Examiner contends that Ikeya et al. discloses substrate 18 which corresponds to the electrically insulating substrate of the present invention, first and second metal films Z5, Z6 formed on the substrate which correspond to the pair of junction electrode layers, chip 11 which corresponds to the sample fixed to the substrate, first metal film (15) or second metal film (19) or eutectic alloy layer (20) which correspond to the adhesive layer, electrodes Z1 or Z2 which correspond to the pair of electrode layers, and conductive portion (14) which corresponds to the two electrically-conductive wires.

Independent claim 1 has been amended to more clearly indicate that the adhesive layer is non-contiguous with the pair of junction electrode layers and that the sample fixed to the adhesive layer is non-contiguous with the pair of junction electrode layers. In view of this configuration, and as

mentioned above, the electrical properties of the sample can be accurately measured.

In rejecting claim 1 as originally presented, the Examiner states that reference numerals Z5, Z6 correspond to the pair of junction electrode layers formed on the substrate. Ikeya et al. teach that the first and second metal films Z5, Z6 are contiguous with the adhesive layer. This configuration as taught in Ikeya et al. measures the electrical resistance of the bonding region between the sample and the substrate. The electrical circuit of Ikeya et al. is very different from the electrical circuit of the present claimed invention. The structure taught by Ikeya et al. is not capable of measuring the electrical property of the sample as accomplished by the present claimed invention.

That is, the present claimed invention as defined by amended claim 1 is patentable over Ikeya et al. because Ikeya et al. does not disclose, teach or suggest an electrically-insulating substrate, a pair of junction electrode layers non-contiguously formed on the substrate and an adhesive layer disposed on the substrate wherein the adhesive layer is non-contiguous with the pair of junction electrode layers, and a sample fixed to the adhesive layer is non-contiguous with the pair of junction electrode layers.

Takahashi et al. does not close the gap between the present claimed invention as defined by amended claim 1 and Ikeya et al.

In view of the foregoing, claim 1 is patentable over the cited reference under 35 USC 102 as well as 35 USC 103.

Claims 2-13 are either directly or indirectly dependent on claim 1 and are patentable over the cited references in view of their dependence on claim 1.

NEW CLAIM

New claim 14 is added to the present application. New claim 14 includes a limitation which was removed from original claim 1. Claim 14 is patentable over the cited references in view of its dependence on claim 1.

It is respectfully believed that no additional fees are due for the presentation of claim 14. If any additional fees are due, please charge our deposit account number 06-1378 for such sum.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

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USSN 09/961,879

1. (Amended) A sample assembly for a thermoelectric analyzer comprising:

(a) an electrically-insulating substrate;

(b) a pair of junction electrode layers non-contiguously formed on said substrate;

(c) [a sample fixed to said substrate;

(d)] an adhesive layer disposed [between said sample and] on said substrate [and made of a material selected from a group consisting of indium and gold-tin alloy], said adhesive layer being non-contiguous with said pair of junction electrode layers;

(d) a sample fixed to said adhesive layer and being non-contiguous with said pair of junction electrode layers;

(e) a pair of electrode layers formed on [a same plane of] said sample; and

(f) two electrically-conductive [wire means: one] wires, a first electrically-conductive wire [means] connecting one of said electrode layers with one of said junction electrode layers, and [another] a second electrically-conductive wire [means] connecting the other of said electrode layers with the other of said junction electrode layers.

4. (Amended) A sample assembly according to claim 3, wherein each of said pair of electrode layers and said pair of junction

electrode layers is made of a multilayer including a top layer which is a gold layer, and said [wire means] wires are gold wires.

7. (Amended) A sample assembly according to claim 1, wherein said adhesive layer is made of gold-tin alloy.